

**Amendments to the Claims:**

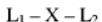
This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

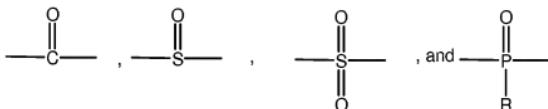
1. (Currently Amended) A method of attaching a biological molecule to a solid support comprising:

(a) providing a solid support ~~comprised~~ consisting essentially of an organic polymer having at least one available amino group;

(b) reacting the available amino group on the solid support with an activating compound, the activating compound having the structure:



wherein  $L_1$  and  $L_2$  are leaving groups, and  $X$  is selected from the group consisting of:



wherein

$R$  is selected from the group consisting of alkyl, aryl, and  $OR^1$ ;

$R^1$  is selected from the group consisting of alkyl and aryl; and wherein the alkyl and aryl groups have having no greater than about 18 carbon atoms; so that the reaction results in  $L_1$  being displaced by the available amino group on the solid support to form an activated support:

(c) providing a biological molecule having at least one reactive amino, thiol, or hydroxyl group, the biological molecule being a macromolecule selected from the group consisting of nucleic acids, polypeptide chains, and carbohydrates; and

(d) reacting the biological molecule with the activated support, thereby displacing  $L_2$  and covalently attaching the biological molecule to the solid support so that the biological molecule is available for use in an assay.

2. (Previously Presented) A method according to claim 1 wherein one or both of L<sub>1</sub> and L<sub>2</sub> are each independently selected from the group consisting of halogen, imidazole, triazole, pyrrole, pyrazole, thiazole, tetrazole, and O-Aryl-R, and wherein R is selected from the group consisting of halogen, nitro, cyano, and alkoxy moiety.

3. (Canceled)

4. (Previously Presented) A method according to claim 1 wherein the activating compound is 1,2,4-carbonyl di-triazole.

5. (Currently Amended) A method according to claim 1 wherein step (b) (c) comprises depositing between about 5 to about 25 nanoliters of the biological molecule in a circular spot at one or more sites on the activated support, wherein the circular spot has a diameter of between about 10 microns to about 500 microns at one or more sites on the activated support.

6. (Previously Presented) A method according to claim 5 wherein one or both of the activating compound and the biological molecule is printed onto the solid support.

7. (Currently Amended) A method according to claim 1 wherein in one or both of step (b), and step (e), the reaction (b) and step (d) occurs in a humid chamber.

8. (Currently Amended) A method according to claim 6 wherein in one or both of step (b), and step (e), the reaction (b) and step (d) occurs in a humid chamber.

9. (Previously Presented) A method according to claim 1 wherein step (b) occurs in an organic solution.

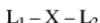
10. (Previously Presented) A method according to claim 9 wherein step (b) occurs in the presence of a tertiary organic base.

11. (Currently Amended) A method according to claim 10 wherein step (b) occurs in an aqueous solution.

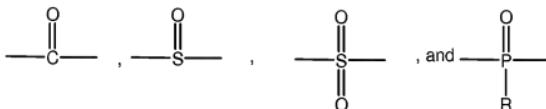
12. (Currently Amended) A method of attaching a biological molecule having at least one reactive amino, thiol or hydroxyl group to a solid support, the method comprising:

(a) providing a solid support ~~comprised adapted for use in an assay consisting essentially~~ of an organic polymer having at least one available amino group, the solid support selected from the group consisting of a plate and a film;

(b) reacting the available amino group on the solid support with an activating compound, the activating compound having the structure:



wherein  $L_1$  and  $L_2$  are leaving groups, and  $X$  is selected from the group consisting of:



wherein

$R$  is selected from the group consisting of alkyl, aryl, and  $OR^1$ ;

$R^1$  is selected from the group consisting of alkyl and aryl; and wherein the alkyl and aryl groups have no greater than about 18 carbon atoms; so that the reaction results in  $L_1$  being displaced by the available amino group on the solid support to form an activated support;

(c) providing a biological molecule having at least one reactive amino, thiol, or hydroxyl group, the biological molecule being a macromolecule; and

(d) reacting the biological molecule with the activated support, thereby displacing L<sub>2</sub> and covalently attaching the biological molecule to the solid support so that the biological molecule is available for use in the assay.

13. (Previously Presented) A method according to claim 12 wherein one or both of L<sub>1</sub> and L<sub>2</sub> are each independently selected from the group consisting of halogen, imidazole, triazole, pyrrole pyrazole, thiazole, tetrazole, and O-Aryl-R, and wherein R is selected from the group consisting of halogen, nitro, cyano, and alkoxy moiety.

14. (Canceled)

15. (Previously Presented) A method according to claim 12 wherein the activating compound is 1,2,4-carbonyl di-triazole.

16. – 17. (Canceled)

18. (Currently Amended) A method according to claim 1 further comprising the step of washing from the solid support non-bound compounds after step (b) and before step (d) (c).

19. (Canceled)

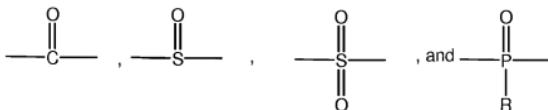
20. (Currently Amended) A method of attaching a biological molecule to a solid support comprising:

(a) providing a solid support comprised of an organic polymer having at least one available amino group, the solid support being formed from a material selected from the group consisting of cellulose, agarose, polypropylene, polystyrene, polymethacrylate, and nylon;

(b) reacting the available amino group on the solid support with an activating compound, the activating compound having the structure:

$L_1 - X - L_2$

wherein  $L_1$  and  $L_2$  are leaving groups, and  $X$  is selected from the group consisting of:



wherein

$R$  is selected from the group consisting of alkyl, aryl, and  $OR^1$ ;

$R^1$  is selected from the group consisting of alkyl and aryl; and wherein

the alkyl and aryl groups have having no greater than about 18 carbon atoms;

so that the reaction results in  $L_1$  being displaced by the available amino group on the solid support to form an activated support;

(c) providing a biological molecule having at least one reactive amino, thiol, or hydroxyl group, the biological molecule being a macromolecule selected from the group consisting of nucleic acids, polypeptide chains, and carbohydrates; and

(d) reacting the biological molecule with the activated support, thereby displacing  $L_2$  and covalently attaching the biological molecule to the solid support so that the biological molecule is available for use in an assay.

21. (Currently Amended) A method according to claim 20 further comprising the step of washing from the solid support non-bound compounds after step (b) and before step (d) (c).

22. (Currently Amended) A method according to claim 20 wherein step (d) (c) comprises depositing between about 5 to about 25 nanoliters of the biological molecule in a circular spot at one or more sites on the activated support, wherein the circular spot has a diameter of between about 10 microns to about 500 microns at one or more sites on the activated support.

23. (Previously Presented) A method according to claim 20 wherein one or both of the activating compound and the biological molecule is printed on the solid substrate.

24. (Currently Amended) A method according to claim 20 wherein in one or both of step (b) and step (d), the reaction (d) occurs in a humid chamber.

25. (Previously Presented) A method according to claim 20 wherein the biological molecule is an oligonucleotide having at least one free amino or thiol group.

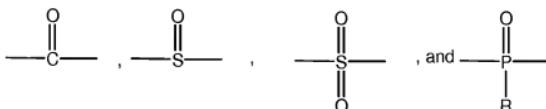
26. Canceled.

27. (Currently Amended) A method of attaching a biological molecule to a solid support, the method comprising:

- providing a solid support comprised of an organic polymer having at least one available amino group, the solid support being formed from a material selected from the group consisting of cellulose, agarose, polypropylene, polystyrene, polymethacrylate, and nylon;
- reacting the available amino group on the solid support with an activating compound, the activating compound having the structure:



wherein  $L_1$  and  $L_2$  are leaving groups, and  $X$  is selected from the group consisting of:



wherein

$R$  is selected from the group consisting of alkyl, aryl, and  $OR^1$ ;

$R^1$  is selected from the group consisting of alkyl and aryl; and wherein

the alkyl and aryl groups have having no greater than about 18 carbon atoms;

so that the reaction results in L<sub>1</sub> being displaced by the available amino group on the solid support to form an activated support;

(c) providing a biological molecule having at least one reactive amino, thiol, or hydroxyl group, the biological molecule being a macromolecule; and

(d) reacting the biological molecule with the activated support, thereby displacing L<sub>2</sub> and covalently attaching the biological molecule to the solid support so that the biological molecule is available for use in an assay.

28. Canceled.

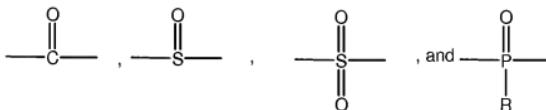
29. (Currently Amended) A method of attaching a biological molecule to a solid support comprising:

(a) providing a solid support ~~comprised~~ consisting essentially of an organic polymer having at least one available amino group;

(b) reacting the available amino group on the solid support with an activating compound, the activating compound having the structure:



wherein L<sub>1</sub> and L<sub>2</sub> are leaving groups, and X is selected from the group consisting of:



wherein

R is selected from the group consisting of alkyl, aryl, and OR<sup>1</sup>;

R<sup>1</sup> is selected from the group consisting of alkyl and aryl; and wherein

the alkyl and aryl groups have having no greater than about 18 carbon atoms;  
so that the reaction results in L<sub>1</sub> being displaced by the available amino group on the solid support to form an activated support;

- (c) providing a biological molecule, wherein the biological molecule is selected from the group consisting of hormones, therapeutic therapeutic drugs, and drugs of abuse; and
- (d) reacting the biological molecule with the activated support, thereby displacing L<sub>2</sub> and covalently attaching the biological molecule to the solid support so that the biological molecule is available for use in an assay.

30.-31. (Canceled).

32. (Currently Amended) A method according to claim 1 wherein the solid support is a plate or a film adapted for use in an assay.

33. (Previously Presented) A method according to claim 1 wherein the solid support is an amine derivatized organic polymer selected from the group consisting of polypropylene, polystyrene, polymethacrylate, and nylon.

34. (Previously Presented) A method according to claim 1 wherein the biological molecule is an amino derivatized oligonucleotide.

35.-36. (Canceled).

37. (New) A method of attaching a biological molecule to a solid support comprising:

- (a) providing a solid support consisting essentially of an organic polymer having at least one available amino group;
- (b) reacting the available amino group on the solid support with 1,2,4-carbonyl di-triazole to form an activated support;
- (c) providing a biological molecule having at least one reactive amino, thiol, or hydroxyl group, the biological molecule being a macromolecule selected from the group consisting of nucleic acids, polypeptide chains, and carbohydrates; and

(d) reacting the biological molecule with the activated support, thereby covalently attaching the biological molecule to the solid support so that the biological molecule is available for use in an assay.